

Application Number: 10/663,659
Examiner: HYEON, Hae M
Art Unit: 2839

Applicant: Speed Tech Corp.

REMARKS

Present Status of the Application

It is noted with great appreciation that Claims 2-7 and 9-13 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims; and Claims 1 and 8 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 112, second paragraph, set forth in this office action.

Accordingly, Applicant has amended Claims 1 and 8 to more clearly describe the claimed invention and also to overcome the rejections under 35 U.S.C. 112, second paragraph.

Furthermore, Applicant has also amended the Title of the Invention in order to overcome the objection of the Examiner, and also amended the entire specification for correcting some minor informalities. A marked_up copy of the specification is attached hereto as separate accompanying pages.

Furthermore, Applicant has amended Claims 2-7 and 9-13 to be consistent with the new Title of the Invention.

It is believed that no new matter adds by way of amendments made to claims, specification or otherwise to the application. For at least the foregoing reasons, Applicant respectfully submits that claims 1-13 are in proper condition for allowance and reconsideration of this application is respectfully requested.


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CONCLUSION

For at least the foregoing reasons, it is believed that all the pending claims 1-13 of the present application are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted



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STRUCTURE OF ELECTRICAL ELECTRIC CONNECTOR

BACKGROUND OF THE INVENTION

1. Field of the Invention:

The present invention relates to ~~an electric~~ a structure of an
 5 electrical connector for use in a computer network and, more particularly to ~~such an electric~~ a structure of an electrical connector, which uses finger means to detachably secure the back cover to the housing, holding down the terminals positively in position inside the housing.

10 2. Description of the Related Art:

Following fast development of computer technology, a variety of sophisticated connectors for use in a computer network has been disclosed. Frequently plug and pull action between matched connectors may cause a distortion of the terminals,
 15 resulting in an interruption or inaccuracy of signal transmission. Therefore, when designing an ~~electric~~ electrical connector, the following factors must be well considered.

(1) How to lower the cost and reduce the number of component parts.

20 (2) How to have the component parts to be conveniently installed.

(3) How to make the assembly detachable.

FIG. 7 is an exploded view of an ~~electric~~ electrical

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connector according to the prior art. According to this design, the
~~electric~~ electrical connector comprises an electrically insulative
 housing A, the housing A having two backwardly extended
 retaining arms A1, a terminal holder B mounted in the housing A,
 5 a back cover C fastened to the rear side of the housing A, and a
 metal shield D covering the housing A and the back cover C. The
 terminal holder B comprises a first holder block B1 holding a set
 of contact terminals B11, and a second holder block B2 holding a
 set of mounting terminals B21. The back cover C is soldered to the
 10 contact terminals B11 and the mounting terminals B21. This
 design of ~~electric~~ electrical connector is complicated, resulting in
 a high manufacturing cost and complicated in installation
 procedures. Because signal is transmitted from the contact
 terminals B11 to the circuit board in which the mounting terminals
 15 B21 are installed via the back cover C, the signal in transmission
 tends to be interfered with external noises, thereby causing an
 instability or interruption of signal transmission. Further, the
 connection between the contact terminals B11 and the mounting
 terminals B21 tend to be broken.

20 Therefore, it is desirable to provide an ~~electric~~ electrical
 connector that eliminates the aforesaid drawbacks.

SUMMARY OF THE INVENTION

The present invention has been accomplished under the

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circumstances in view.

It is the main object of the present invention to provide a structure of an electric electrical connector, which is simple and inexpensive to manufacture.

5 It is another object of the present invention to provide a structure of an electric electrical connector, which is detachable.

To achieve these objects of the present invention, the electric electrical connector comprises an electrically insulative housing, comprising a front receiving side, a recessed rear
 10 mounting side, and a plurality of insertion holes extended from the front receiving side to the rear mounting side, a plurality of terminals respectively mounted in the recessed rear mounting side of the housing, the terminals each comprising a horizontally extended mounting portion positioned inside the housing, a front
 15 contact portion curved obliquely backwards from a front end of the mounting portion and a soldering portion downwardly extended from a rear end of the mounting portion, the passageways in between the spacer blocks to the outside of the housing for soldering to a circuit board; and a back cover press-fitted into the
 20 recessed rear mounting side of the housing to hold the terminals, and the back cover comprising at least one flat pressure wall adapted to hold down the soldering portions of the terminals in the recessed rear mounting side of the housing.

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BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded view of an ~~electric~~ electrical connector according to the present invention.

FIG. 2 is an oblique front elevation in an enlarged scale of
5 the housing for the ~~electric~~ electrical connector shown in FIG. 1.

FIG. 3 is an exploded side view in section of the ~~electric~~ electrical connector according to the present invention.

FIG. 4 is an exploded top view in section of the ~~electric~~ electrical connector according to the present invention.

10 FIG. 5 is a sectional side view of the present invention showing the ~~electric~~ electrical connector assembled.

FIG. 6 is a top view in section of the present invention showing the ~~electric~~ electrical connector assembled.

FIG. 7 is an exploded view of an ~~electric~~ electrical
15 connector according to the prior art.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. 1~4, ~~an the~~ the ~~electric~~ electrical connector in accordance with the present invention ~~is shown comprised of~~
20 comprises an electrically insulative housing 1, a plurality of terminals 2 mounted in the housing 1, and a back cover 3 fastened to the back side of the housing 1 to hold down the terminals 2.

The housing 1 has a front receiving side 11, a recessed rear

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mounting side 12, a plurality of insertion holes 121 extended from the front receiving side 11 to the rear mounting side 12, a plurality of hook holes 122 formed in the rear mounting side 12, a finger unit 13 backwardly extended from the rear mounting side 12, a plurality of protruding blocks 14 suspended in the rear mounting side 12, and a plurality of passageways 141 respectively defined in between each two adjacent protruding blocks 14. The finger unit 13 comprises a plurality of spacer blocks 131, and a plurality of passageways 1312 respectively defined in between each two adjacent spacer blocks 131. Each spacer block 131 has a front locating groove 1311.

The terminals 2 each comprise a horizontally extended mounting portion 21, a front contact portion 22 curved obliquely backwards from the front end of the mounting portion 21, a rear vertical soldering portion 23 curved downwards from the rear end of the mounting portion 21 and terminating in a material bar 24. According to this embodiment, the terminals 2 are arranged into two sets each set having a material bar 24 connected to the rear vertical soldering portions 23 of the respective terminals 2.

The back cover 3 comprises two flat pressure walls 31 in the front side, a plurality of hooks 33 forwardly extended from the front side corresponding to the hook holes 122 in the housing 1, a finger unit 32 formed in the front side below one of the flat

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pressure walls 31 and a plurality of vertical partition flanges 34
 formed in the front side below the other of the flat pressure walls
 31. The finger unit 32 comprises a plurality of receiving open
 chambers 321 and partition flanges 322 alternatively arranged
 5 below the flat pressure walls 31.

Referring to FIGS. 5 and 6, the terminals 2 are mounted in
 the rear mounting side 12 of the housing 1 to force the mounting
 portions 21 into the insertion holes 121 of the housing 1
 respectively, keeping the front contact portions 22 of the terminals
 10 2 respectively suspended in the front receiving side 11 of the
 housing 1 and the rear vertical soldering portions 23 of the
 respective terminals 2 respectively positioned in the passageways
 1312 in between the spacer blocks 131 and the front locating
 grooves 1311 of the spacer block 131 and the passageways 141 in
 15 between the protruding blocks 14, and then the back cover 3 is
 press-fitted into the rear mounting side 12 to engage the hooks 33
 into the respective hook holes 122 in the housing 1, keeping the
 spacer blocks 131 of the finger unit 13 of the housing 1
 respectively engaged into the receiving open chambers 321 of the
 20 finger unit 32 of the back cover 3 and the partition flanges 322 of
 the back cover 3 respectively engaged into the passageways 1312
 in between the spacer blocks 131 of the finger unit 13 of the
 housing 1 and the passageways 141 in between the protruding

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blocks 14.

At this time, the flat pressure walls 31 of the back cover 3 hold down the rear vertical soldering portions 23 of the terminals 2 in the passageways 1312 and the front locating grooves 1311 firmly. After installation of the back cover 3, the material bars 24 are separated from the rear vertical soldering portions 23 of the terminals 2, for enabling the rear vertical soldering portions 23 of the terminals 2 to be respectively soldered to a circuit board (not shown).

The aforesaid design can be employed to any of a variety of network connectors (for example RJ-45 and RJ-11). The aforesaid preferred embodiment is a combination of RJ-45 and RJ-11. Alternatively, the connector of the present invention can be made in the form of a RJ-45 connector or RJ-11 connector independently. The main feature of the present invention is the design of the flat pressure walls 31 and finger unit 32 of the back cover 3 adapted to hold down the terminals 2 firmly in the rear mounting side 12 of the housing 1.

A prototype of ~~electric~~ electrical connector has been constructed with the features of FIGS. 1~6. The ~~electric~~ electrical connector functions smoothly to provide all of the features discussed earlier.

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What the invention claimed is:

1. (currently amended) ~~An electric~~ A structure of a
electrical connector comprising:

an electrically insulative housing, said housing comprising
5 a front receiving side, a recessed rear mounting side, a plurality of
insertion holes extended from said front receiving side to said rear
mounting side, and a finger unit backwardly extended from said
rear mounting side, wherein the finger unit comprises a plurality
of spacer blocks, and wherein a passageway is formed between
10 every two adjacent spacer blocks;

a plurality of terminals respectively mounted in said
recessed rear mounting side of said housing, said terminals each
comprising a horizontally extended mounting portion positioned
inside said housing, a front contact portion curved obliquely
15 backwards from a front end of said mounting portion, and a rear
vertical soldering portion downwardly extended from a rear end of
said mounting portion ~~and~~ passing through the passageways ~~in~~
between said spacer blocks to the outside of said housing for
soldering to a circuit board; and

20 a back cover press-fitted into said recessed rear mounting
side of said housing to hold down said terminals, said back cover
comprising at least one flat pressure wall adapted to hold down the
rear vertical soldering portions of said terminals in the recessed

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rear mounting side of said housing, and a finger unit forced into engagement with the finger unit of said housing to hold down said terminals.

2. (currently amended) The structure of the electrical
 5 ~~electric~~ connector as claim 1, wherein said housing further comprises a plurality of hook holes formed in said recessed rear mounting side; said back cover further comprises a plurality of hooks respectively hooked in the hook holes of said housing.

3. (currently amended) The structure of the electrical
 10 ~~electric~~ connector as claim 1, wherein the finger unit of said housing comprises a plurality of spacer blocks, and a plurality of passageways respectively defined in between each two adjacent spacer blocks, said spacer blocks each having a front locating groove; the finger unit of said back cover comprises a plurality of
 15 receiving open chambers, which receive the spacer blocks of the finger unit of said housing, and a plurality of partition flanges, which separate said receiving open chamber.

4. (currently amended) The structure of the electrical
~~electric~~ connector as claim 3, wherein the passageways in between
 20 the spacer blocks of the finger unit of said housing and the front locating grooves of said spacer blocks of said housing receive the rear vertical soldering portions of said terminals, and the partition flanges of the finger unit of said back cover are respectively

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engaged into the passageways of said housing to hold down the rear vertical soldering portions of said terminals.

5. (currently amended) The structure of the electrical electric connector as claim 1, wherein the mounting portions of
5 said terminals are respectively positioned in the insertion holes of said housing.

6. (currently amended) The structure of the electrical electric connector as claim 1, wherein the front contact portions of
10 said terminals are respectively suspended in the front receiving side of said housing.

7. (currently amended) The structure of the electrical electric connector as claim 1, which is a RJ-45 connector.

8. (currently amended) ~~An electric~~ A structure of a electrical connector comprising:
15 an electrically insulative housing, said housing comprising a front receiving side, a recessed rear mounting side, a plurality of insertion holes extended from said front receiving side to said rear mounting side, a plurality of protruding blocks ~~suspended in~~
extending from said rear mounting side, and a ~~plurality of~~
20 ~~passageways~~ passageway respectively ~~defined in~~ formed between said every two adjacent protruding blocks;

a plurality of terminals respectively mounted in said recessed rear mounting side of said housing, said terminals each

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comprising a horizontally extended mounting portion positioned inside said housing, a front contact portion curved obliquely backwards from a front end of said mounting portion, and a rear vertical soldering portion downwardly extended from a rear end of
 5 said rear mounting portion side passing through the passageways in between said ~~space~~ protruding blocks to the outside of said housing for soldering to a circuit board; and

a back cover press-fitted into said recessed rear mounting side of said housing to hold down said terminals, said back cover
 10 comprising a flat pressure wall and a plurality of partition flanges adapted to hold down the soldering portions of said terminals in the rear mounting side of said housing.

9. (currently amended) The structure of the electrical electric connector as claim 8, wherein said housing further
 15 comprises a plurality of hook holes formed in said recessed rear mounting side; said back cover further comprises a plurality of hooks respectively hooked in the hook holes of said housing.

10. (currently amended) The structure of the electrical electric connector as claim 8, the passageways in between the
 20 protruding blocks receive the rear vertical soldering portions of said terminals, and the partition flanges of said back cover are respectively engaged into the passageways of said housing to hold down the rear vertical soldering portions of said terminals.

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11. (currently amended) The structure of the electrical
~~electric~~ connector as claim 8, wherein the mounting portions of
said terminals are respectively positioned in the insertion holes of
said housing.

5 12. (currently amended) The structure of the electrical
~~electric~~ connector as claim 8, wherein the front contact portions of
said terminals are respectively suspended in the front receiving
side of said housing.

10 13. (currently amended) The structure of the electrical
~~electric~~ connector as claim 8, which is a RJ-11 connector.

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ABSTRACT OF THE DISCLOSURE

A structure of an ~~An~~ electric electrical connector for network signal transmission is constructed to include an electrically insulative housing, which has a front receiving side, a recessed rear mounting side, insertion holes extended between the front receiving side and the rear mounting side, and a finger unit backwardly extended from the rear mounting side, terminals mounted in the insertion holes and suspended in the front receiving side of the housing, and a back cover detachably press-fitted into the recessed rear mounting side of the housing to hold down respective rear soldering portions of the terminals.

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